VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI

CURRICULUM

Academic Batch 2024 – 2028 (Autonomous)

Post Graduate Engineering Program-M Tech

Outcome Based Education (OBE)

EAST POINT COLLEGE OF ENGINEERING & TECHNOLOGY

MTech Scheme

PRODUCT DESIGN AND MANUFACTURING

DEPARTMENT OF MECHANICAL ENGINEERING

An Autonomous Institution Affiliated to Visvesvaraya Technological University (VTU) Belagavi Approved by All India Council for Technical Education (AICTE), New Delhi. Recognized by Govt. of Karnataka

UG programs Accredited by National Board of Accreditation (NBA): CSE, ECE & ISE

2025-2026

I SEMESTER (Core Courses related to main Engineering Stream)

Sl. No	Course Type	Course Code	Course Title	Teaching Hours per Week			Examination				Credits
				Theory	Practical/Seminar	Tutorial/SDA	Duration in hours	CIE Marks	SEE Marks	Total Marks	
				L	P	T/SDA					
1	PCC	EPME101	Waste to Energy	3	0	0	03	50	50	100	3
2	PCC	EPME102	Mechatronics for Industrial Application	3	0	1	03	50	50	100	3
3	IPCC	EPME103(IPCC)	Introduction to AI and ML	3	2	0	05	50	50	100	4
4	PCC	EPME114	**Professional Elective 1**	3	0	0	03	50	50	100	3
5	PCC	EPME115	**Professional Elective 2**	3	0	0	03	50	50	100	3
6	PCCL	EPMEL106	Engineering Computational Tools Laboratory	0	2	2	03	50	50	100	2
9	NCMC	EPRMI107	Research Methodology and IPR (**Online**)	Online courses (online.vtu.ac.in)							PP
								300	**300**	**600**	**18**

Professional Elective 1		**Professional Elective 2**	
EPME114A	Material Selection in Machine Design	EPME115A	Smart Mobility
EPME114B	Advance Fluid Mechanics	EPME115B	Industrial Robots
EPME114C	Additive Manufacturing Techniques	EPME115C	Design of Experiments
EPME114D	Vibration and Condition Monitoring	EPME115D	Theory of Metal Cutting and forming

Note: **BSC**-Basic Science Courses, **PCC**: Professional core. **IPCC**-Integrated Professional Core Courses, **PCC(PB):** Professional Core Courses (Project Based), **PCCL**-Professional Core Course lab **,NCMC**- None Credit Mandatory Course,**L-** Lecture**, P-**Practical**, T/SDA**-Tutorial / Skill Development Activities(Hours are for Interaction between faculty and students) **MRMI107**-Research Methodology and IPR (**Online**) for the students who have **not studied** this course in the Undergraduate level. This course is not counted for vertical progression; Students have to qualify for the award of the master's degree.

M- Master program **xx** – **ME** for Mechanical Engineering Stream, **CV** for Civil Engineering Stream, **EE** – Electrical & Electronics Engineering Stream, **EC**- Electronics and Communication Engineering Stream, **CS**- Computer Science and Engineering **BA**- Business Administration **AR**- Architecture- etc.

BSC: Basic Science Courses: Courses like Mathematics/ Science are the prerequisite courses that the concerned engineering stream board of Studies will decide. **PCC: Professional Core Course:** Courses related to the stream of engineering, which will have both CIE and SEE components, students have to qualify in the course for the award of the degree. **Integrated Professional Core Course (IPCC)**: Refers to a Professional Theory Core Course Integrated with practicals of the same course. The IPCC's theory part shall be evaluated by CIE and SEE. The practical part shall be evaluated by only CIE (no SEE). However, questions from the practical part of IPCC shall be included in the SEE question paper. **Project Based Learning Course (PCC(PB):** Project Based Learning course is a professional core Course only Students have to complete a project out of learning from the course and SEE will be viva voce on project work. **PCCL: Professional Core Course Laboratory:** A Practical course who's CIE will be evaluated by the class teacher and SEE will be evaluated by the two examiners.

Skill development activities: Under Skill development activities in a concerning course, the students should

1. Interact with industry (small, medium, and large).
2. Involve in research/testing/projects to understand their problems and help creative and innovative methods to solve the problem.
3. Involve in case studies and field visits/ fieldwork.
4. Accustom to the use of standards/codes etc., to narrow the gap between academia and industry.
5. Handle advanced instruments to enhance technical talent.
6. Gain confidence in the modelling of systems and algorithms for transient and steady-state operations, thermal study, etc.
7. Work on different software/s (tools) to simulate, analyze and authenticate the output to interpret and conclude.

All activities should enhance student's abilities to employment and/or self-employment opportunities, management skills, Statistical analysis, fiscal expertise, etc. Students and the course instructor/s are to be involved either individually or in groups to interact together to enhance the learning and application skills of the study they have undertaken. The students with the help of the course teacher can take up relevant technical –activities that will enhance their skills. The prepared report shall be evaluated

for CIE marks.

MRMI107-Research Methodology and IPR- None Credit Mandatory Course (NCMC) if students have not studied this course in their undergraduate program then he /she has to take this course at **http://online.vtu.ac.in** and to qualify for this course is compulsory before completion of the minimum duration of the program (Two years), however, this course will not be considered for vertical progression.

Specialization in – Product Design and Manufacturing (MPD)

II SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Hours /Week			Examination				Credits
				Theory	Practical/	Tutorial/ Skill Developme	Duration in hours	CIE Marks	SEE Marks	Total Marks	
				L	P	T/SDA					
1	IPCC	EPMPD201	Design for Manufacturing	3	2	0	03	50	50	100	4
2	PCC	EPMPD202	Industrial Design and Ergonomics	3	0	0	03	50	50	100	3
3	PCC	EPMPD203	Lean Manufacturing System	3	0	0	03	50	50	100	3
4	PEC	EPMPD214B	Professional elective 3(NTM)	3	0	0	03	50	50	100	3
5	PEC	EPMPD215B	Professional elective 4(DMT)	3	0	0	03	50	50	100	3
6	PCC	EPMPD206	Finite Element Methods	3	0	0	03	50	50	100	3
7	PCCL	EPMPDL207	Product Design Visualization Engg. Lab-II	0	0	2	03	50	50	100	2
8	AEC/SEC	EPMPD258D	Ability/Skill Enhancement Course (Offline/Online) Rapid Prototyping	00 01	02 00	--- ----	02 01	50	50	100	1
TOTAL								**400**	**400**	**800**	**22**

Note: **PCC**: Professional core. **IPCC**-Integrated Professional Core Courses, **PCC(PB):** Professional Core Courses (Project Based), **PCCL**-Professional Core Course lab**, PEC-** Professional Elective Courses, **MDC-** Multi-Disciplinary Courses.
L-Lecture, P-Practical, T/SDA-Tutorial / Skill Development Activities (Hours are for Interaction between faculty and students), **L-Lecture, P-Practical, T/SDA-Tutorial / Skill Development Activities** (Hours are for Interaction between faculty and students) **PBLC**: Project Based Learning Course.
Note: xxxmeans specialization code for example MPD **–Product Design and Manufacturing.**

Ability / Skill Enhancement Courses

Course Code	Course title	L	T/SDA	P
EPMPD258A	Product Analysis and Cost Optimization	01	00	00
EPMPD258B	Industrial Robotics and Automation	01	00	00
EPMPD258C	Project Management	01	00	00
EPMPD258D	Rapid Prototyping	01	00	00

Ability Enhancement Courses (AEC): These courses are designed to help students enhance their skills in communication, language, and personality development. They also promote a deeper understanding of subjects like social sciences and ethics, culture and human behaviour, human rights, and the law.**Skill Enhancement Course (SEC):**Skill Enhancement Course means a course designedto provide value-based or skill-based knowledge and should contain both theory and lab/hands- on/training/fieldwork. The main purpose of these courses is to provide students with life skills in the hands-on mode to increase their employability.

Specializations

Professional Electives – 3	
Course Code	**Course Title**
EPMPD214A	Robust Design
EPMPD214B	Non Traditional Machining Processes
EPMPD214C	Materials and Processes for Design
EPMPD214D	Design by Quality

Professional Elective - 4	
Course Code	**Course Title**
EPMPD215A	Design of Mould and Dies
EPMPD215B	Design Machine Tools
EPMPD215C	Design of for Quality
EPMPD215D	Optimization Techniques

PCC/PCCL/IPCC/PEC/MDC/PCC(PB): These are the courses that will suit the individual specializations